**List of Items for the Breaking Down the Steps of Cellular Respiration Chart**

Mrs. Krouse, AP Biology

**Directions:** Each of the items below is used in the chart. Some are used more than once, but you will be told how many times these items will be used. Use this list of items to help you complete your chart. You may want to cross off each item as you add it to your chart.

* This step takes place in the matrix of the mitochondrion (used twice)
* 2 ATP are created through substrate-level phosphorylation (used twice)
* Pyruvate is oxidized
* Oxygen gas (O2) is reduced
* In this step, we use energy from electrons in NADH and FADH2 to create an H+ gradient. The H+ gradient allows us to use ATP synthase to create a lot of ATP. (Note: This is one of the Overall Descriptions.)
* 2 NADH are produced (used twice)
* NAD+ is reduced (used twice)
* This step takes place across the mitochondrial inner membrane
* 32-34 ATP are created through oxidative phosphorylation
* Acetyl CoA is oxidized
* In this step, pyruvate is broken down into acetyl CoA and CO2. (Note: This is one of the Overall Descriptions.)
* No ATP are created
* 6 NADH and 2 FADH2 are produced
* Glucose is oxidized
* All NADH and FADH2 made in the last three steps are used
* In this step, acetyl CoA is broken down to CO2, but the overall goal is to make electron carriers like NADH and FADH2. (Note: This is one of the Overall Descriptions.)
* This step takes place in the cytoplasm/cytosol of the cell.
* NAD+ and FADH are reduced
* NADH and FADH2 are oxidized
* In this step, glucose is broken down into two pyruvate molecules. (Note: This is one of the Overall Descriptions.)